CLAIMS

1. A method of transmitting data in a wireless power transmission system comprising a power transmitter which comprises a first light source, means for directing light emitted by the first light source in a desired direction, and at least one power receiver which comprises a first photo-detector for receiving the emitted light and for converting it into electric current, the method comprising:

transmitting, by a second light source included in the power transmitter, substantially parallelly and as pulses, light arranged around the light emitted by the first light source, the intensity of the pulses being substantially lower than the intensity of the light emitted by the first light source and data bits being encoded in the pulses so as to determine a maximum time interval between two successive pulses,

indicating, by a second photo-detector included in the power receiver, light pulses emitted by the second light source,

determining data included in the light pulses and time between successive received light pulses, and

transmitting a control signal indicating disturbance-free reception of data from the power receiver to the power transmitter in response to the time between successive received light pulses not exceeding the maximum time interval determined for two successive pulses.

2. The method of claim 1, further comprising:

transmitting the control signal indicating the reception of the light pulses emitted by the second light source from the power receiver to the power transmitter at regular intervals,

stopping the transmission of the control signal in response to detecting a disturbance in the light pulses emitted by the second light source.

3. The method of claim 1, wherein the second light source comprises a plural number of separate light sources arranged substantially circularly around the first light source.

4. The method of claim 3, further comprising:

indicating, by the power receiver, the light pulses emitted by the plurality of separate light sources as logical binary values, and

stopping the transmission of the control signal in response to the binary value of a light pulse emitted by at least one of the separate light sources deviating from the simultaneous binary values of other light pulses.

5. The method of claim 1, further comprising:

activating, in response to the control signal received by the power transmitter, the first light source of the power transmitter in order to transmit power to the power receiver.

6. The method of claim 1, further comprising:

transmitting the light of the first light source at a wavelength and at a power density that enable a brief ocular exposure.

7. A wireless power transmission system comprising:

a power transmitter which comprises a first light source and means for directing light emitted by the first light source in a desired direction, and at least one power receiver which comprises a first photo-detector for receiving the emitted light and for converting it into electric current, a second light source emitting light pulses of a substantially lower intensity than the intensity of light pulses emitted by the first light source, the pulses being arranged to be transmitted substantially parallelly around the light emitted by the first light source and data bits being encoded in the pulses so as to determine a maximum time interval between two successive pulses; and

at least one power receiver which comprises a first photo-detector for receiving the emitted light and for converting it into electric current, a second photo-detector for indicating light pulses emitted by the second light source, means for determining data included in the light pulses and time between successive received light pulses, and transmitting means responsive to the determination, arranged to transmit a control signal to the power transmitter in response to the time between successive received light pulses not exceeding the maximum time interval determined for two successive pulses.

8. The power transmission system of claim 7, wherein

the power receiver is arranged to transmit the control signal to the power transmitter at regular intervals from the reception of the light emitted by the second light source and, in response to detecting a disturbance in the light emitted by the second light source, to stop the transmission of the control signal.

9. The power transmission system of claim 7, wherein

the second light source comprises a plural number of separate light sources arranged substantially circularly around the first light source.

10. The power transmission system of claim 9, wherein

the power receiver is arranged to indicate the light pulses emitted by the plurality of separate light sources as logical binary values, whereby

the power receiver is arranged to stop the transmission of the control signal in response to the binary value of a light pulse emitted by at least one of the separate light sources deviating from the simultaneous binary values of other light pulses.

11. The power transmission system of claim 7, wherein

the power transmitter is arranged to activate the first light source of the power transmitter in order to transmit power to the power receiver in response to the control signal received by the power transmitter.

12. The power transmission system of claim 7, wherein

the power transmitter is arranged to transmit the light of the first light source at a wavelength and at a power density that enable a brief ocular exposure.

13. A power transmitter in a wireless power transmission system, the power transmitter comprising:

a first light source and means for directing light emitted by the first light source in a desired direction, a second light source emitting light pulses of a substantially lower intensity than the intensity of the light pulses emitted by the first light source, the pulses being arranged to be transmitted substantially parallelly around the light emitted by the first light source and data bits being encoded in the pulses so as to determine a maximum time interval between two successive pulses.

14. A power receiver in a wireless power transmission system, the power receiver comprising:

a first photo-detector for receiving light emitted by a first light source and for converting it into electric current, a second photo-detector for indicating light pulses emitted by a power transmitter, means for determining data included in the light pulses and time between successive received light pulses, and transmitting means responsive to the determination, arranged to transmit a control signal to the power transmitter in response to the time between successive received light pulses not exceeding the maximum time interval determined for two successive pulses.